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AN ASSESSMENT OF TRADITIONAL UIGHUR MEDICINE IN CURRENT XINJIANG REGION (CHINA)

Zhi Qiao Ma[1] Hao Hu[1*] Tian Tian He[1] Hong Guo[1] Mao Yu Zhang[1] Mei Wan Chen[1] Yi Tao Wang[1]

[1]State Key Laboratory of Quality Research in Chinese Medicine, Institute of Chinese Medical Sciences, University of Macau, Macao
***Email:** haohu@umac.mo

Abstract

Background: The main objectives of this study were to assess the current research and development of traditional Uighur medicine in Xinjiang (China), and to evaluate the promising pharmacological products of traditional Uighur medicine for further studies.
Materials and Methods: Traditional Uighur medicine data of medicine registry, patent, and academic publications was collected and analyzed.
Results: Data showed that, among the registered and studied traditional Uighur medicine, the main therapeutic areas of traditional Uighur medicine focused on skin disease, urogenital disease, rheumatism and digestive system disease. The representative traditional Uighur patent medicine included the following: *BaixuanXiatare* Tablets, *Kaliziran* Tincture and *Vernoniaanthelmintica* Injection (Psoriasis and vitiligo); *Xi-payimazibizi*Liquid (prostatitis); *KursiKaknaq* (urinary tract infection); *Tongzhisurunjiang* Capsules (anti-rheumatism medicine); *HuganBuzure* Granules (digestive system disease). Moreover, ten Uighur herbs were widely used, including: *ResinaScammoniae*, *Folium FumicisDentati, HerbaDracocephali, Semen AmygdaliDulcis, HerbaChamomillae, FructusPimpinellaeanisi, Cortex Foeniculi, FructusVernoniae, FructusApii, and Radix AnacycliPyrethri.*
Conclusion: This study concluded by indicating that traditional Uighur medicine with excellent curative effect should be screened in details for their phytochemical properties and pharmacological activity to discover new bioactive constituents.

Key words: Traditional Uighur medicine, Traditional Uighur patent medicine, Uighur herb

Introduction

Traditional Uighur medicine (TUM) is one of the most important traditional medicines in Central Asia, which is rooted in the ancient Uighur medicine theory and has a history of more than 2,500 years. Currently, TUM is mainly applied over Central Asia, North Africa and South Europe (Wang et al., 2005). The traditional theory of Uighur medicine regards that the nature is constituted by four substances: fire, air, water, and earth (Amat et al., 2009; Geng, 2006). Built upon this theory, TUM in Xinjiang Province (China) has also combined the essence of other medical theories, such as traditional Chinese medicine, ancient Greece medicine, Egyptian medicine, Arabian medicine, and Indian medicine. It has formulated a profound theoretical system, which is composed of the four temperaments (hot, cold, moist, and dry) and the four body fluids (*Kan* (blood), *Belghem* (phlegm), *Sapra* (yellow bile), and *Savda* (black bile) (Upur et al., 2011). The theory of body fluids came from the ancient Unani medicine theory, the humorism. Based on the Humorae theory, TUM has emphasized the balance status of four temperaments and that conditioning of the body fluids has become the main therapeutic principles (Upur et al., 2011).

Based on its complete medical theory system, TUM in Xinjiang has accumulated rich clinical experiences in the past. In treating intractable diseases, TUM has shown distinguished medical methods and unique therapeutic effect. As a traditional ethnic medicine, TUM has made great contribution to not only the health care in Xinjiang but also the medical treatment around China. Moreover, it has benefited the people in the other countries of Central Asia, with their intimate collections of religious beliefs and language (see Figure 1).

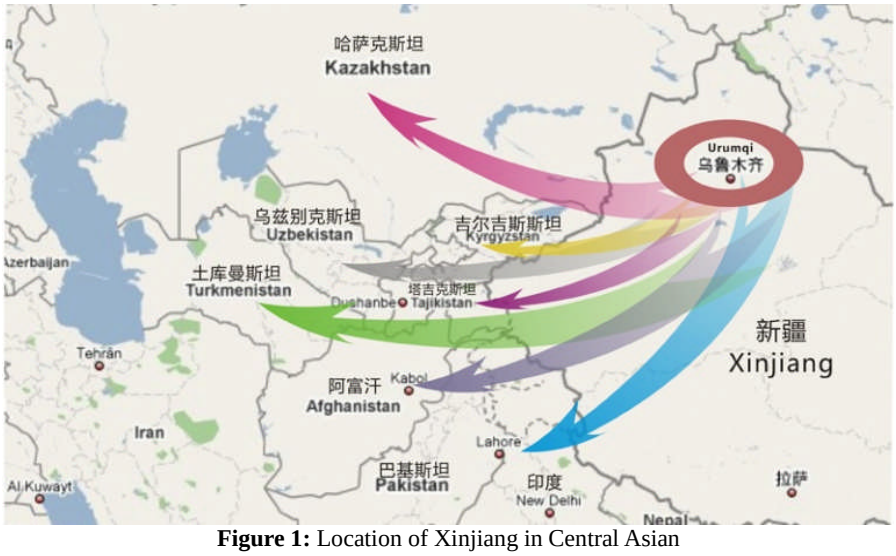

Figure 1: Location of Xinjiang in Central Asian

Despite its special medical contribution to patients, TUM in Xinjiang has not received the attention it deserves in modern research and development. Thus, this study aims at assessing the current research and development of Uighur medicine in Xinjiang thorough studying its registry, patent, and publications, hoping to provide inspiring knowledge about new pharmacological products of Uighur medicine.

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Materials and Methods

Data source and collection

To provide comprehensive analysis of TUM in Xinjiang, this study targeted not only traditional Uighur patent medicine (TUPM) but also Uighur herbs. TUPM are prescription preparations that follow the traditional Uighur medicine theory, which have been applied in medical treatment historically. Data of registry, patent and academic publication of TUM in Xinjiang was identified as main data types. All the data was searched and obtained from specific databases. Because the research of TUM is still at a primary stage and most of researches are from China, this study mainly focused on databases in China.

Firstly, the registry database of CFDA (China Food and Drug Administration) was used to search and screen the registered TUPM. The standard names of these TUPM were adopted from the Drug Standard of Ministry of Health of the People's Republic of China (*Uighur Medicine Part*), which was edited by The Ministry of Health of the People's Republic of China as a legal basis for TUM's manufacturing, sales, usage, and administration.

Secondly, the China Medicine Patent Database in China Intellectual Property Right Net (CNIPR) was used to search patents of TUPM and Uighur herbs. TUPM's name and formulation were searched by "ABSTRACT" in the database to identify target patents. For Uighur herbs, only herb name was used.

Thirdly, the academic publication data of TUPM and Uighur herbs were retrieved in the China National Knowledge Internet (CNKI). Both TUPM and Uighur herb were searched by name, with retrieval strategy as "SU= a medicine's name".

Data analysis

Data analysis was conducted in sequence. Firstly, we analyzed the information of registered TUPM, mainly focusing on therapeutic area, dosage and formulation. Secondly, patents and academic publications of TUPM were analyzed. For patents, analysis focused on patent's name, type and therapeutic area; for academic publications, analysis concentrated on paper quantity and research content. Thirdly, the ten Uighur herbs mostly used in TUPM were analyzed by similar analysis strategy of TUPM.

Results

Registry of TUPM

Data showed that 43 TUPMs listed in the Drug Standard of Ministry of Health of the People's Republic of China (Uighur Medicine Part, 2000 edition) had got official approval (see Table 1). For therapeutic areas, these TUPMs were mainly used for treating skin, urogenital system and digestive system diseases. Among these registered TUPMs, there are11 TUPMs treating skin disease, including Compound *Siyadan* Tincture, *Qubaimaribairesi* Pills, *BaixuanXiatare* Tablets, Compound*Muni Ziqi* Granules, *QubaiBabuqi* Tablets, Compound *Vernoniaanthelmintica* Pills, *Kaliziran* Tincture, *Vernoniaanthelmintica* Injection, *Suziafu* Tablets, and *Yangxindawayimixikemi* Unguent. And 10 TUPMs are related to treat genitourinary system diseases, including *Qiangshenluobofusaiheli* Unguent, *Wenshensulafu* Tablets, *Gujingmaisiha* Tablets, *Xi-payimazibizi* Liquid, *KursiKaknaq*, *Yanxiaodinaer* Syrup, *QingreKasen* Granules, *Luobufukebiri* Tablets, *Yimusake* Tablets, and *Jinsuokunduer* Tablets. Additionally, 7 TUPMs are about treatment of digestive system diseases, including *Mamuran antidiarrheal l* Capsules, *QizilGulqent*, *Xipay*i mouth rinse, Rose Oral Liquid, *Tongzhiaitilefeilisana* Tablets, *HuganBuzure* Granules, *Sanhanyao* Tea, and Compound *Gaoziban* Tablets.

Categorized through dosage, the approved TUPMs include about 10 different dosage forms, representatives as 15 in tablets, 7 in granules and 5 in mixture, taking the proportion 34.9%, 16.3% and 11.6% respectively. The only one TUPM injection is *Vernonia anthelmintica* Injection. Only 8 TUPMs were approved with traditional dosage forms of Uighur medicine, such as liniment, tincture and soft extract. Simultaneously, 20 TUPMs were approved as over-the-counter medicine, with the proportion 46.5% of the total.

Table 1: TUPM approved by CFDA (By therapy through ranking)

	Therapeutic area	Local Uighur name	Dosage form	Prescription	Bases	Taxonomical details	Plant parts used
1	Skin disease	Compound Vernoniaanthelmintica Pills	Pill	Y	*FructusVernoniae* *Radix Anacycli Pyrethri* *Rhizoma Zingiberis*, *Radix OperculinaeTurpethi*	*Asteraceae, Vernonieae* *Asteraceae, Anthemideae* *Amomum zingiber* *Convolvulaceae, Operculina*	*Mature fruit* *Root* *Dried rhizome* *Root*
2	Skin disease	Qubaimaribairesi Pills	Pill	N	*BungarusParvus* *ResinaScammoniae* *Radix AnacycliPyrethri* *Stigma Croci* *Semen StrychiNux-vomicae* *Scorpio* *Aloe Varae* *Rana Ridibunda* *Gekko* *Boswellia carterii* *Rhizoma Aeori Calami*	*Elapidae, Bungarus* *Convovulus scammonia* *Asteraceae, Anthemideae* *Crocus sativus* *Loganiaceae, Strychnos* *Arachnida, Scorpiones* *Xanthorrhoeaceae, Asphodeloideae* *Rana, Ranidae* *Gekkonidae, Gekko* *Burseraceae, Boswellia* *Acorus calamus*	*Dried body* *Emulsion exudates of the roots* *Root* *Stigma* *Dry ripe seed* *Dried body* *Herb* *Dried body* *Dried body* *Resin* *Rhizoma*
3	Skin disease	BaixuanXiatare Tablets	Tablet	N	*Herba Euphorbiae Humifusae*,	*Euphorbia, humifusa*	*Herb*

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					Fructus Chebulae,	*Combretaceae, Terminalia*	*Mature fruit*
					Resina Scammoniae	*Convovulus scammonia*	*Emulsion exudates of the roots*
					Aloe Varae	*Xanthorrhoeaceae, Asphodeloideae*	*Herb*
4	Skin disease	QubaiBabuqi Tablets	Tablet	Y	*Fructus Psoraleae*	*Fabaceae, Psoralea*	*Mature fruit*
					Fructus Vernoniae	*Asteraceae, Vernonieae*	*Mature fruit*
					Rhizoma Alpiniae Officinarum	*Zingiberaceae, Alpinia*	*Rhizoma*
					Herba Operculinae Turpethi	*Convolvulaceae, Operulina*	*Herb*
					Radix et Herba Plumbaginis Zeylani-cae	*Plumbaginaceae, Plumbago*	*Root*
5	Skin disease	Vernoniaanthelmintica Injection	Injection	Y	*Fructus Vernoniae*	*Asteraceae, Vernonieae*	*Mature fruit*
6	Skin disease	Compound Siyadan Tincture	Tincture	N	*SemenNigellae Ganduliferae*	*Ranunculaceae*	*Dry ripe seed*
					Semen Persicae,	*Rosaceae, Prunus*	*Dry ripe seed*
					Fructus Granati	*Pomegranate, Granatum*	*Mature fruit*
7	Skin disease	Kaliziran Tincture	Tincture	Y	*Fructus Vernoniae*	*Asteraceae, Vernonieae*	*Mature fruit*
					Fructus Psoraleae	*Fabaceae, Psoralea*	*Mature fruit*
					Radix Polygni Multiflori	*Knotweed, Fallopia*	*Root tuber*
					Radix Angelicae Sinensis	*Apiaceae, angelica*	*Root*
					Radix Sapshnikoviae,	*Umbelliferae, Saposhnikovia*	*Root*
					Fructus Cnidii	*Umbelliferae, Cnidium*	*Mature fruit*
					Cortex Dictamni	*Rutaceae*	*Peel*
					Fructus Mume	*Rosaceae, Prunus*	*Near mature fruits*
					Semen sinapis	*Cruciferae, Sinapis*	*Dry ripe seed*
					Flos Caryophylli	*Myrtaceae, caryophyllata*	*Flower bud*
8	Skin disease	Compound Siyadan Tonic	Liniment	N	*Semen Nigellae Ganduliferae*	*Ranunculaceae*	*Dry ripe seed*
					Semen Persicae	*Rosaceae, Prunus*	*Dry ripe seed*
					FructusGranati	*Pomegranate, Granatum*	*Mature fruit*
9	Skin disease	CompoundMuni Ziqi Granules	Granule	Y	*Herba cichorii*	*Asteraceae, Cichorieae*	*Herb*
					Cortex Foeniculi	*Umbelliferae, Foeniculum*	*Peel*
					Cichorium intybus L.	*Asteraceae, Cichorium*	*Herb*
					Fructus Apii	*Umbelliferae, Apium*	*Mature fruit*
					Herba Dracocephali	*Labiatae, Dracocephalum*	*Herb*
					Semen Nigellae Ganduliferae,	*Ranunculaceae*	*Dry ripe seed*
					Radix Glycyrrhizae	*Leguminosae, Glycyrrhiza*	*Root and rhizome*
					Herba Chomomollae	*Malavaceae, Althaea*	*Herb*
					Herba Cymbopogonis Citrari	*Poaceae, Cymbopogon*	*Herb*
					Fructus Ocimi Basilici	*Ocimum, basilicum*	*Mature fruit*
					Fructus Pimpinellae Anisi	*Umbelliferae, Pimpinella*	*Mature fruit*
10	Skin disease,Cardiovascular Disease	Suziafu Tablets	Tablet	N	*Herba Cymbopogonis Distantis*	*Poaceae, Cymbopogon*	*Herb*
					Radix Arnebiae Euchroma	*Boraginaceae, Arnebia*	*Root*
					Herba Absinthii	*Asteraceae, Artemisia*	*Hherb*
11	Skin disease,Cardiovascular Disease	Yangxindawayi mixikemi Unguent	Soft Extract	Y	*Lignum Santali Albi*	*Santalaceae, Santalum*	*Lignum*
					Moschus	*Cervidae, Cervus*	*Dry secretion in sachet of mature male Moschus*
					StigmaCroci.	*Iridaceae, Crocus*	*Heartwood*
					ConcretioSiliceaBambusae	*Gramineae, Bambusa*	*Cube after the liquid secretion inside of haulm dried of plant*
					Flos Anchusae	*Verbenaceae, Callicarpa*	*Flower*

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					Margarita, Succinum	*Pteriidae*	*The resin of Pinus plants, buried under the earth for long years and concreted and transformed to sulfhydryl compound*
					Aurum Foil,		*Native gold*
					Argentum Foil		*Native silver*
					Incuabulum Bombycis	*Bombycidae*	*Cocoon shell of silk cocoon*
					Mastiche	*Burseraceae, Boswellia*	*Aromatic resin of the mastic tree*
					Lignum Aquilariae Resinatum	*Thymelaeaceae, Aquilaria*	*Resinous wood*
12	Genitourinary System Disease	Luobufukebiri Tablets	Tablet	Y	*Pinus bungeana,*	*Pinaceae, Pinus*	*Not known*
					Fructus Dauci Sativae	*Apiaceae, Daucus*	*Mature fruit*
					Penis Bovis	*Bovidae*	*Dry penis and testicles of Bos taurus domesticus*
					Semen Amygdali Dulcis	*Rosaceae, Amygdalus*	*Dry ripe seed*
					Semen Brassicae Rapae	*Cruciferae, Brassica*	*Dry ripe seed*
					Semen Cocois	*Alliaceae, Allicea*	*Dry ripe seed*
					Stigma Croci.	*Crocus sativus*	*Stigma*
					Arillus Myristicae	*Myristicaceae, Myristica*	*Dry aril*
					Mesua ferrea L.	*Guttiferae, Mesua*	*Not known*
					Semen Medicaginis	*Fabaceae, Medicago*	*Dry ripe seed*
					Limoniumgmelinii (Wildl.) Kuntze, etc.	*Chenopodiaceae, lljinia*	*Not known*
13	Genitourinary System Disease	Wenshensulafu Tablets	Tablets	N	*Tuber Salep,*	*Orchidaceae, Bletilla*	*Tuber*
					Semen Myristicae,	*Myristicaceae, Myristica*	*Dry ripe seed*
					Rhizoma Alpiniae Officinarum	*Zingiberaceae, Alpinia*	*Rhizome*
					Radix Aconiti Lateralis Preparata	*Ranunculaceae, Acontium*	*Secondary root*
					Arillus Myristicae	*Myristicaceae, Myristica*	*Dry aril*
					Cortex Cinnamomi	*Lauraceae, Cinnamamunz*	*Bark*
					Papaversom niferum L.	*Papaveraceae, papaver*	*Pericarpium*
					Stigma Croci.	*Crocus sativus*	*stigma*
14	Genitourinary System Disease	Gujingmasiha Tablets	Tablet	N	*Radix Anacycli Pyrethri*	*Asteraceae, Pyrethrum*	*Root*
					Mastich	*Burseraceae, Boswellia*	*Aromatic resin of the mastic tree*
					Fructus Cardamomi	*Zingiberaceae, Amomum*	*Mature fruit*
					Rhizoma Cyperi	*Cyperaceae, Cyperus*	*Rhizome*
					Stigma Croci.,	*Crocus sativus*	*Stigma*
					Semen Myristicae	*Myristicaceae, Myristica*	*Dry ripe seed*
					Radix Curcumae Wenyujin	*Zingiberaceae, Curcuma*	*Root tuber*
					Flos Caryophylli	*Myrtaceae, Eugenia*	*Flower bud*
					Radix et Rhizoma Nardostachycis	*Valerianaceae, Nardostachys*	*Root and rhizome*
					Fructus Tsaoko	*Zingiberaceae, Amomum*	*Mature fruit*
					Flos Rosae Rugosae	*Rosaceae, rosa*	*Flower bud*
15	Genitourinary System Disease	KursiKaknaqyi	Tablet	Y	*Herba Physalis Alkekengi*	*Spamaceae, Physalis*	*Herb*
					Semen Cucumeris	*Cucurbitaceae, Cucumis*	*Dry ripe seed*
					Resina Draconis	*Palmae, Daemonorops*	*Processed resin effused by the fruit*
					Gum tragacanth	*Leguminosae, Astragalus*	*Processed gum*
					Ummi Rabicum	*Mimosaceae, Acacia*	*Processed gum*
					Semen Amygdali Dulcis	*Rosaceae, Amygdalus*	*Dry ripe seed*
					Radix Glycyrrhizae	*Leguminosae, Glycyrrhiza*	*Root and rhizome*
					Boswellia carterii	*Burseraceae, Boswellia*	*Resin*
					Frcutus Apii	*Umbelliferae, Apium*	*Mature fruit*
					Opium	*Papaveraceae, papaver*	*Extract of fruit*
16	Genitourinary System	Yimusake Tablets	Tablet	Y	*Tuber Salep*	*Orchidaceae, Bletilla*	*Roots*
					Moschu	*Secretions*	*Animal glands*

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	Disease				*AmberaGrisea*	*Iridaceae, Crocus*	*Digestive Secretions*
					Stigma Croci.	*Loganiaceae, Strychnos*	*Pistil*
					Semen StrychiNux-vomicae		*Seeds*
					Boswelliacarterii		*Resin*
					Penis Bovis		*Bullwhip*
					Semen Myristicae	*Myristicaceae, Myristica*	*Fruit*
					FlosCaryophylli,	*Myrtaceae, Syzygium*	*Buds*
					RhizomaAlpiniaeOfficinarum	*Papaveraceae, Papaver*	*poppy capsule*
					Papaversomniferum L.	*Zingiberaceae, Alpinia*	*Rhizome*
17	Genitourinary System Disease	Xi-payimazibizi Liquid	Mixture	Y	*Fructus Mori*	*Moraceae, Moraceae*	*Fruit*
					Semen Euryales	*Nymphaeaceae, Euryale*	*Seeds*
					RhizomaDioscoreaeSeptemloba e	*Dioscoreaceae*	*Tuber*
					FructusRosaeLaevigatae	*Rosaceae, Rosa*	*Fruit&seeds*
					FructusGardeniae	*Rubiaceae, Gardenia*	*Fruit*
18	Genitourinary System Disease	Qiangshenluobofusaiheli Unguent	Soft Extract	Y	*Pinusbungeana Pistaciavera L.*	*Pinaceae, Pinaceae*	*pine cone*
					Semen Coryli,	*Anacardiaceae, Pistacia*	*Fruit*
					Semen AmygdaliDulcis,	*Betulac, Corylus*	*Fruit*
					Papaversomniferum L.,	*Rosaceae, Prunus*	*Fruit*
					Herbalamiibarbati,	*Papaveraceae, Papaver*	*Seeds*
					Semen Melo,	*Labiatae, Lamium*	*Herb*
					Semen Fraxini,	*Cucurbitaceae, Cucumis*	*Seeds*
					Cortex Cinnamomi,	*Oleaceae, Ligustrum*	*Fruit*
					Limoniumgmelinii (Wildl.)	*Lauraceae, Cinnamomum*	*limb*
					Kuntze	*Plumbaginaceae, Limonium*	*Herb*
					Semen Cucumeris, Radix	*Cucurbitaceae*	*Seeds*
					CentaureaRuthenica, etc.	*Asteraceae, Centaurea*	*Root*
19	Genitourinary System Disease	Yanxiaodinaer Syrup	Syrup	Y	*FlosNymphaeae*	*Nymphaeaceae, Nymphaea*	*Flower*
					Radix cichorii	*Asteracea, Cichorium*	*Roots*
					Fructus cichorii	*Asteracea, Cichorium*	*Fruit*
					FlosRosaeRugosae	*Rosaceae, Rosaceae*	*flower*
					Rhizoma et Radix	*Apiaceae, Ligusticum*	*Herb*
					RheiPalmat	*Polygonacea, Rheum*	*Root*
					Folium FumicisDentati,	*Boraginaceae, Anchusa*	*Herb*
					Semen CuscutaeChinensis	*Convolvulaceae, Cuscuta*	*Herb*
20	Genitourinary System Disease	QingreKasen Granules	Granule	Y	*Herbacichorii*	*Asteraceae, Cichorium L.*	*Herb*
21	Genitourinary System Disease 乙 Digestive System Disease	Jinsuokunduer Tablets	Tablet	N	*Boswelliacarterii*	*Burseraceae, Boswellia*	*resin*
					Rhizoma Cyperi	*Cyperaceae, Cyperus*	*Stem*
					Radix Aucklandiae	*Rosaceae*	*Stem*
					FructusQuerciAcutissimae	*Fagaceae, Quercus*	*Seeds*
					RhizomaZingiberis	*Zingiberaceae, Zingiber*	*Roots*
					Piper nigrum L.	*Piperaceae, Piper*	*Seeds*
22	Digestive System Disease	Tongzhiaitilefeilisana Tablets	Tablet	N	*Folium Sennae*	*Leguminosae, senna*	*foliage*
					PhyllanthiFructus	*Combretaceae, Terminalia*	*Fruit*
					FructusChebulaeImmaturus	*Phyllanthace, Phyllanthus*	*Fruit*
					FructusChebulae	*Combretacea, myrobalan*	*Fruit*
					FructusTerminaliaeChebulae	*Combretaceae, Terminalia*	*Fruit*
23	Digestive System	Tongzhiaitilefeilisana Tablets	Tablet	N	*GallaTurcica*	/	*Larva*

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	Disease						
24	Digestive System Disease	Rose Oral Liquid	Mixture	N	*FlosRosaeRugosae*	*Rosaceae, Rosaceae*	*Flower*
25	Digestive System Disease	Mamuranantidiarrheal Capsules	Capsule	Y	*RhizomaCoptidis* *ResinaDraconis,* *Boswelliacarterii* *GallaTurcica* *FlosGranati* *ConcretioSiliceaBambusae* *Semen PlantaginisPsyllii* *FructusChebulaeImmaturus* *FructusCoriandri* *FructusChebulae* *FructusBerberis*	*Ranunculacea, Coptideae* *palmae* *Burseraceae, Boswellia* */* *Lythraceae, Punica* *Hypocreaceae, tabaxir* *Plantaginaceae, Plantago L* *Phyllanthaceae, Phyllanthus* *Apiaceae, corainder* *Combretacea, Quisqualis* *Berberidaceae, Berbens*	*Rootstock* *Resin* *Resin* *Larva* *Pericarp* *Fungus* *Herb* *Fruit* *Herb* *Fruit* *Rootstock*
26	Digestive System Disease	Qizil Guliqent	Soft Extract	N	*FlosRosaeRugosae*	*Rosaceae, Rosaceae*	*Flower*
27	Digestive System Disease	HuganBuzure Granules	Granule	Y	*FructusApii,* *Herbacichorii* *Semen Cuscutae* *Chinensis.* *Radix Api* *Cortex Foeniculi* *Cichoriumintybus L.* *FructusFoeniculi*	*Umbelliferae, celery* *Asteraceae, Cichorium L.* *Convolvulaceae, Cuscuta europaea* *umbelliferae, celery* *Umbelliferae, Foeniculum Mill.* */* *Asteraceae, Cichorium L.*	*Seeds* *Herb* *Herb* *Roots* *Roots* */* *Roots*
28	Digestive System Disease,musculoskeletal system （rheumatism）	Sanhanyao Tea	Liniment	N	*Fructus Cardamomi* *Valerianaofficinalis Linn.* *FructusPimpinellaeAnisi* *Cortex Cinnamomi* *FructusTsaoko* *FructusCinnamomi* *RhizomaAlpiniaeOfficinarum* *FructusPiperisLongi* *FlosCaryophylli* *FructusFoeniculi* *FructusApii* *FructusGardeniae*	*Zingiberaceae, Elettaria Maton* *Valerianaceae,Valeriana* *Apiaceae, Pimpinella* *Lauraceae, Cinnamomum* *Zingiberaceae, Amomum L.* *Lauraceae, Cinnamomum* *Zingiberaceae, Alpinia* *Piperaceae, Piperaceae* *Oleaceae, Oleaceae* *umbelliferae, Foeniculum Mill* *umbelliferae, celery* *Rubiaceae, Gardenia*	*Seeds* *Herb* *Seeds* *Rind* *Fruit* *Fruit* *Roots* *Cluster* *Flower* *Seeds* *Seeds* *Fruit*
29	Respiratory System Disease	ResaiBisitan Granules	Granule	Y	*FructusCordiaeDichotomae,* *FructusJujubae* *Papaversomniferum L.* *Radix Glycyrrhizae* *FructusAlthaeaeRoseae* *Semen Cucumeris* *Semen Cydoniae* *Semen AmygdaliDulcis* *Papaversomniferum L.* *Radix Glycyrrhizae* *UmmiRabicum*	*Boraginaceae, Cordia* *Rhamnaceae, Ziziphus* *Papaveraceae, Papaver* *Fabaceae, Glycyrrhiza* *Malvaceae, Alcea* *Cucurbitaceae, Cucumis Linn* *Rosaceae, Cydonia* *Rosaceae, Prunus* *Papaveraceae, Papaver* *Fabaceae, Glycyrrhiza* *Leguminosae, Acacia*	*Fruit* *Fruit* *Pericarpium papaveris* *Root* *Seeds* *Seeds* *Seeds* *Seeds* *Seeds* *Roots* *Gum*
30	Respiratory System Disease	Zukamu Granules	Granule	Y	*RhizomaKaempferiae* *FlosNymphaeae* *FructusCordiaeDichotomae* *HerbaMenthae*	*Zingiberaceae, Kaempferia* *Nymphaeaceae, Nymphaea* *Boraginaceae, Cordia* *Lamiaceae, Mentha L.*	*Stem* *Flower* *Fruit* *Lea*

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					FructusJujubae	*Rhamnaceae, Ziziphus*	*Fruit*
					HerbaChomomollae	*Compositae, Anthemis*	*Flower*
					Radix Glycyrrhizae	*Fabaceae, Glycyrrhiza*	*Roots*
					Semen AlthaeaeRoseae	*Malvaceae, Alcea*	*Seeds*
					Rhizoma et Radix RheiPalmat	*Polygonaceae, Rheum*	*Roots*
					Papaversomniferum L.	*Papaveraceae, Papaver*	*Pericarpium papaveris*
31	Respiratory System Disease	Hanchuanzupa Granules	Granule	Y	*HerbaHyssopi*	*Labiatae, Hyssopus*	*Lea*
					Herbaadianticaudati	*Adiantaceae, Adiantum*	*Hibiscus trionum*
					Radix Glycyrrhizae	*Fabaceae, Glycyrrhiza*	*Root*
					FructusFoeniculi	*Apiaceae, Foeniculum*	*Fruit*
					FructusApii	*Apiaceae, Apium*	*Fruit*
					Semen Trigone	*Fabaceae, Trigonella*	*Seeds*
					HerbaCymbopogonisDistantis	*Rutaceae, Ruta*	*Lea*
					FlosRosaeRugosae	*Rosaceae, Rosa*	*Flower*
					Semen Urticae	*Urticaceae, Urtica L*	*Seeds*
32	Blood System	Kebireti Tablets	Tablet	Y	*Sulfur*	*Sulphur*	*Crystal*
					UmmiRabicum,	*Leguminosae, Acacia*	*Gum*
					Sal-Ammoniac	*Sal-Ammoniac*	*Crystal*
					Radix AnacycliPyrethri	*Asteraceae, Chrysanthemum*	*Roots*
					Poria	*Fomitopsidaceae,Wolfiporia*	*Sclerotium*
33	Blood System	GangkangMukuli Tablets	Tablet	N	*Com-miphoramukul*	*Burseraceae*	*Resin*
					Succinum	*Ambrum*	*Resin*
					OsCorallii	*Agariciidae*	*Calcareous skeleton*
					Concha MargaritiferaUsta	*Nacre*	*Powder*
					FructusChebulae	*Combretaceae, Terminalia*	*Fruit*
					FructusTerminaliaeChebulae,	*Combretaceae, Terminalia*	*Fruit*
					PhyllanthiFructus	*Combretaceae, Terminalia*	*Fruit*
					FructusChebulaeImmaturus	*Phyllanthaceae, Phyllanthus*	*Fruit*
34	Blood System	Xueninganjipaer Syrup	Mixture	Y	*RhizomaPolygoniBistortae*	*Polygonaceae, Polygonum*	*Stem*
35	Cardiovascular System	Aiweixin Liquid	Mixture	N	*IncuabulumBombycis*	*Silkworm cocoon*	*Silkworm cocoon*
					HerbaAnchusae,	*Boraginaceae, Lycopsis, Echium*	*Lea*
					Radix et RhizomaNardostachycis	*Caprifoliaceae, Nardostachys*	*Roots and rhizomes*
					Flos Salix Caprea	*Salicaceae, Salix*	*Flower*
					Moschus	*Moschus*	*Sachet*
					Stigma Croci.	*Iridaceae, Crocus*	*Stigma*
					HerbaDracocephaliMoldavicae	*Labiatae, Dracocephalum*	*Hibiscus trionum*
					HerbaLavandulae	*Lamiaceae, Perilla L.*	*Seeds*
					FlosAnchusae	*Boraginaceae, Lycopsis, Echium*	*Flower*
					FructusCardamomi	*Zingiberaceae, Elettaria Maton*	*Seeds*
					Usnea	*Usneaceae, Usnea*	*Thallus*
					FlosRosaeRugosae, etc.	*Rosaceae, Rosa*	*Flower*
36	Cardiovascular System	YixinBadiranjibuya Granules	Granule	N	*HerbaDracocephaliMoldavicae,*	*Labiatae, Dracocephalum*	*Hibiscus trionum*app:add word:Hibiscus trionum
					Cane sugar	*D(+)-Sucrose*	*D(+)-Sucrose*
					Dextrin	*Dextrin*	*Dextrin*
37	Musculoskeletal system (rheumatism)	Tongzhisurunjiang Capsules	Capsule	Y	*Colchicum autumnale*	*Colchicaceae, Colchicum*	*Capsule*
					ResinaScammoniae	*Convovulus scammonial*	*Gum*
					Stigma Croci.	*Iridaceae, Crocus*	*Stigma*

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					Folium Sennae	*Leguminosae, senna*	*Lea*
					FructusChebulae	*Combretaceae, Terminalia*	*Fruit*
					HerbaOperculinaeTurpeth i	*Convolvulaceae, Operculina*	*Velamen*
					Semen AmygdaliDulcis	*Rosaceae, Prunus*	*Seeds*
38	Musculoskeletal system (rheumatism)	Compound Luotuopengzi Ointments	Ointment	Y	*Semen Pegani,*	*Peganaceae, Peganum*	*Seeds*
					Semen HyoscyamiNigeris	*Solanaceae, Hyoscyamus*	*Seeds*
39	Nervous system	Compound Gaoziban Tablets	Tablet	Y	*HerbaAnchusae*	*Boraginaceae, Lycopsis,Echium*	*Lea*
					Radix CentaureaRuthenica,	*Asteraceae, Centaurea*	*Roots*
					Lignum Santali Albi	*Santalaceae, Santalum*	*Roots*
					Limoniumgmelinii(Wildl.) Kuntze	*Plumbaginaceae, Limonium*	*Lea*
					HerbaDracocephali	*Labiatae, Dracocephalum*	*Hibiscus trionum*app:add word:Hibiscus trionum
					Semen LepidiiSativi	*Brassicaceae, Lepidium*	*Seeds*
					FructusPerillaeArgutae	*Lamiaceae, Perilla L.*	*Seeds*
					FlosAnchusae	*Boraginaceae, Lycopsis,Echium*	*Flower*
					IncuabulumBombycis	*Silkworm cocoon*	*Silkworm cocoon*
					HerbaLavandulae	*Lamiaceae,Lavandula*	*Flower*
					FructusCoriandri.	*Apiaceae, Coriandrum*	*Seeds*
40	Nervous system	JianxinHemi'er gaozibanAnbire Tablets	Tablet	N	*HerbaAnchusae*	*Boraginaceae, Lycopsis, Echium*	*Lea*
					FlosAnchusae,	*Boraginaceae, Lycopsis, Echium*	*Flower*
					AmberaGrisea	*Ambergris*	*Bezoar*
					Margarita	*Pernulo*	*Pernulo*
					Succinum	*Ambrum*	*Resin*
					IncuabulumBombycis	*Silkworm cocoon*	*Silkworm cocoon*
					Os Corallii	*Agariciidae*	*Calcareous skeleton*
					LignumSantali Albi	*Santalaceae, Santalum*	*Bole*
					AurumFoil	*Native gold*	*Native gold*
					ArgentumFoil	*Native silver*	*Native silver*
					FlosSalixCaprea, etc.	*Salicaceae, saliko*	*Flower*
41	Nervous system	Xingnaokukeya Tablets	Tablet	N	*Aloe Varae*	*Liliaceae, Aloe*	*Lea*
					HerbaAbsinthii	*Compositae, artemisia*	*Lea*
					Mastiche	*Burseraceae, Boswellia*	*Resin*
					ResinaScammoniae	*Convovulus scammonial*	*Gum*
					FructusColocynthis	*Cucurbitaceae*	*Fruit*
42	Nervous system,ophthalmology	ChuzhangZehaipu Tablets	Tablet	N	*ResinaScammoniae,*	*Convovulus scammonial*	*Gum*
					Aloe Varae,	*Liliaceae, Aloe*	*Lea*
					Stigma Croci.	*Iridaceae, Crocus*	*Stigma*
					HerbaOperculinaeTurpeth i	*Convolvulaceae, Operculina*	*Velamen*
					FructusChebulae	*Combretaceae, Terminalia*	*Fruit*
					FlosRosaeRugosae	*Rosaceae, Rosa*	*Flower*
					Boswelliacarterii	*Burseraceae, Boswellia*	*Resin*
43	Anti-infectious agent	A'naerFujie Ye	Lotion	Y	*CortexGranatii,*	*Punicaceae, punica*	*Pericarp*
					FrcutusSophorii	*Leguminosae, Sophora*	*Root*
					FructusCnidii	*Umbelliferae, Cnidium*	*Fruit*
					GallaTurcica,	*Gall wasps*	*Larva*
					OsCorallii	*Agariciidae*	*Calcareous skeleton*
					FructusZanthoxyli	*Rutaceae, Zanthoxylum*	*Seeds*
					Borneo	*Dipterocarpaceae, Dryobalanops*	*Resin*

Analysis of TUPM patents

Among all the registered TUPMs, 14 TUPMs are related to totally 19 invention patent applications that were mostly submitted after 2000. Consequently 10 TUPMs got patent authorization, mainly focusing on the treatment of skin disease, urogenital disease and respiratory disease. In detail, 5 TUPMs are for skin disease, 2 for urogenital disease and one for each aspect of respiratory, digestive and ophthalmology disease.

Most of these TUPM patents are related to prescription composition. Only the patent of *Xi-payimaibizi* Liquid involves with quality control

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and detection and is named “A quality control method to treat prostatitis using traditional Chinese medicine”. The patents of *Kaliziran* Tincture and *Vernoniaanthelmintica* Injection are new application patents, named as “Anew use of *Kaliziran* Tincture to treat or prevent psoriasis” and “A major use of *Vernoniaanthelmintica* Injection in the data basis of cough-asthma” respectively. Moreover, only *Zukamu* Granules has got new drug dosage form patent, named as “A preparation and method of cold capsule”. (see Table 2)

Table 2: TUPM with patent authorization

No.	Therapeutic areas	Drug names	Patent names	Patent content type	Application time
1	Skin disease	Compound *Siyadan* Tonic	Compound *Siyadan* Tonic	Prescription	1995
2	Skin disease, cardiovascular disease	*Suziafu* Tablets	A preparation method of traditional Chinese medicine composition	Prescription	2010
3	Skin disease	*BaixuanXiatare* Tablets	A TCM preparation and method to treat skin disease	Prescription	2008
4	Skin disease	*Kaliziran* Tincture	A new use of *Kaliziran* Tincture to treat or prevent psoriasis	New Application	2006
5	Skin disease	*Vernoniaanthelmintica* Injection	A major use of *Vernoniaanthelmintica* Injection in the catabasis of cough-asthma	New Application	2004
6	Urogenital disease	*Xi-payimaibizi* Liquid	A quality control method to treat prostatitis using traditional Chinese medicine	Quality Control	2010
7	Urogenital disease	*KursiKaknaq*	Improved traditional patent medicine to treat heat stranguria and ache.	Prescription	2005
8	Digestive disease	*HuganBuzure* Granules	An extraction technology of compound *HerbaCichorii*	Prescription	2009
9	Respiratory disease	*Zukamu* Granules	A preparation and method of cold capsule	New dosage form	2002
10	Ophthalmology disease	XuzhangZehaipu Tablets	A preparation method of traditional Chinese medicine to treat cataract	Prescription	2008

Analysis of TUPM publication

Data analysis of TUPM publications in CNKI showed a steady growth since 2001 to 2011 (see Figure 2). Especially after 2007 there is a rapid increase of paper quantity, implying greater research interest in TUPM.

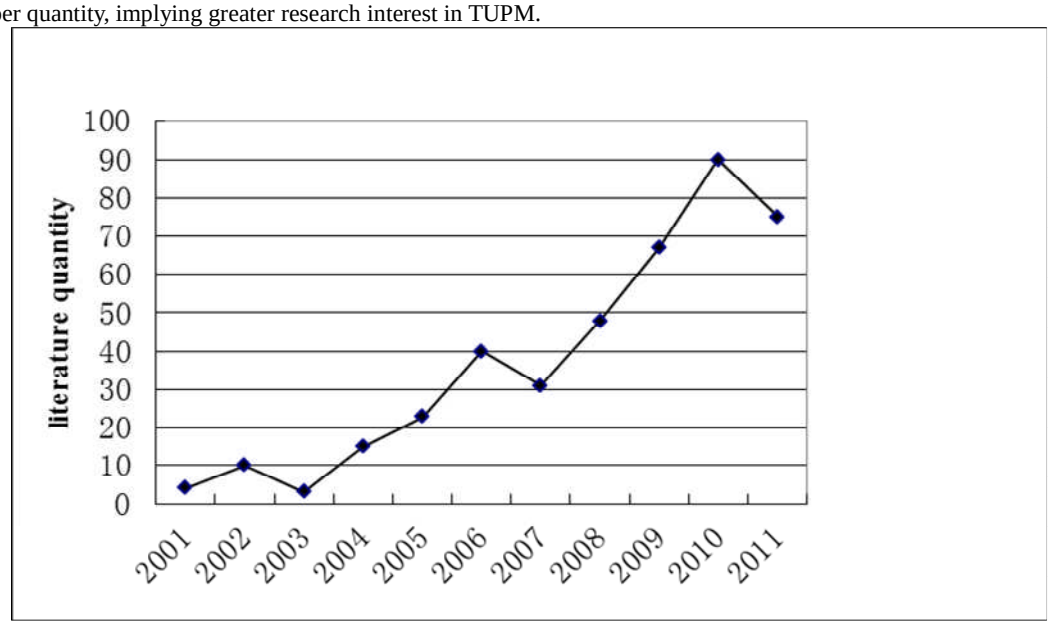

Figure 2: Publications of TUPM in CNKI (2001-2011)

Through sorting the number of academic publications, the first ten TUPMCs were summarized in Table 3. Medicines for treating skin disease are still the largest group in number, including *Kaliziran* Tincture, *BaixianXiatare* Tablets, Compound *MuliZiqi* Granules,

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Vernoniaanthelmintica Injection. The other TUPMs are in the therapeutic areas of urogenital, respiratory, cardiovascular, anti-infection disease and rheumatism. Among all the 408 research articles of TUPM, the maximum quantity appears on the dentistry medicine *Xipayi* mouth rinse, with 94 academic publications. *Xipayi*mouth rinse is used for sterilization, anti-inflammation, protecting the tooth and oral soft tissues. It's a single-formula preparation with *Quercus infectoria Oliv*as the effective components. It is widely used in Southern Xinjiang Province of China not only by Uighur medicine doctors for treating Abnormal Savda Syndrome but also by ordinary people for self-medication.

In the respect of research contents, there are 258 clinical observation publications, 63.2% of the total. The rest publications are related to basic researches, quality standard and preparation technology, accounting for 10.8%, 9.3% and 2.0% respectively. In detail, publications about *Zukamu* Granules and *A'naerFujie Ye* are highly related to quality standard, and the number of these publications about quality standard accounts for about 30% and 50% respectively. But there is no clinical observation research in the publications of *A'naerFujie Ye*. In the publications of *Aiweixin* Liquid, basic research and clinical observation research have nearly the same quantity, each about 34% of the total. (See Table 3)

Table 3: Academic publications of ten mostly studied TUPM

	Drug name	Literature quantity	Literature content				
			Clinical observation	Preparation technology	Quality standard	Basic research	Others
1	*Xipayi mouth rinse*	94	77	0	4	1	12
2	*Kaliziran* Tincture	91	83	0	1	0	7
3	*BaixuanXiatare* Tablets	43	25	1	5	3	9
4	*Compound Muni Ziqi* Granules	30	26	1	2	0	1
5	*Zukamu* Granules	29	5	4	9	7	4
6	*Aiweixin* Liquid	28	11	0	1	10	6
7	*Tongzhisurunjiang* Capsules	25	14	0	5	2	4
8	*Vernoniaanthelmintica* Injection	24	11	0	2	7	4
9	*Yimusake* Tablets	23	6	0	0	14	3
10	*A'naerFujie Ye*.	21	0	2	9	0	10
Total		408	258	8	38	44	60

Analysis of Uighur herb patents

Sorted by the usage frequency in the 43 approved TUPMs, the ten mostly used Uighur herbs can be ordered from high to low as: *ResinaScammoniae*, *Folium FumicisDentati*, *HerbaDracocephali*, *Semen AmygdaliDulcis.*, *HerbaChamomillae*, *FructusPimpinellaeanisi*, *Cortex Foeniculi*, *FructusVernoniae*, *FructusApii*, and *Radix AnacycliPyrethri*.

For patent applications of these ten main Uighur herbs, there are 274 patent applications totally. Among these patent applications, 24 applications have got patent authorizations, with an average authorization rate of 12.4%. The main therapeutic areas of these Uighur herbs include rheumatism, skin disease, urogenital disease and cosmetics (see table 4). *Herba Chamomillae* has the most patent authorizations, with 13 authorizations from 120 patent applications. Most of its patents focus on the cosmetics area, which are widely used as natural skin care extractions in making hand cream, cleanser and bath cream.

The following Uighur herb is *FructusVernoniae*, with 20 applications and 5 authorizations. These patents are mainly related to the treatment of vitiligo and other skin diseases, except one patent about cough-asthma, which was named as "A major use of *Vernonia anthelmintica* Injection in remission stage of cough-asthma".

The mass of patent applications of *Folium FumicisDentati* concentrate on the extraction technology and preparation process, and half of these patent applications are used to treat tumor and cardiovascular disease. There are two authorized patents involved in two medicines, which were named as "*Gandanweifukang* Mixture (a medicine for liver and gastrointestinal disease) and its preparation method" and "Abnormal SavdaMunziq and its preparation method" respectively. The patent applications of *Semen AmygdaliDulcis* are mainly related to the therapeutic areas of rheumatism and urogenital disease, and two authorized patents are "Abnormal SavdaMunziq and its preparation method" and "Improved traditional patent medicine to relieve pain and act as a diuretic". Furthermore, seven patent applications of *FructusApii*are mainly used in the treatment of hypertension, hyperglycemia, and rheumatic diseases, and all of them are about TUM's prescriptions.

The other Uighur herbs' patent applications got no patent authorizations. *Herba dracocephali* has 16 patent applications, mainly focusing on the research of high flavonoids content, which indicates significant treatment effect towards cardiovascular disease. These patent applications involve some preparations such as sustained release tablets and orally disintegrating tablets of flavones in *Herba dracocephali*. In addition,

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FructusPimpinellaeanisi has no patent applications until now.

Table 4: Patent analysis of main Uighur herbs

	Uighur herbs	Plant species	Patent		Main applications	Family of plants
			Total	Authori-zations		
1	Folium FumicisDentati	*Rumex dentatus* L.	17	2	Tumor, Cardiovascular Disease	Polygonaceae
2	Herba Dracocephali	*Dracocephalum moldavica* L.	16	0	Cardiovascular Disease	Lamiaceae
3	ResinaScammonia e	*Convovulusscam monia* L.	5	0	Rheumatism, Skin Disease and Cataract	Convolvulaceae
4	Semen AmygdaliDulcis	*Amygdalus communis* L.	4	2	Rheumatism and Urogenital Disease	Rosaceae
5	HerbaChamomilla e	*Matricaria chamomilla* L.	120	13	Cosmetics	Asteraceae
6	FructusPimpinella eanisi	*Pimpinel laanisum* L.	0	0	—	Apiaceae
7	Cortex Foeniculi	*Foeniculum vulgare* Mill.	3	0	Rheumatism	Apiaceae
9	FructusVernoniae	*Vernonia anthelmintica* Willd.	20	5	Vitiligo and Other Skin Disease	Asteraceae
8	FructusApii	Apiumgraveolens L.	7	2	Hypertension, Hyperglycemia, and Rheumatic Diseases Like Arthritis	Apiaceae
10	Radix AnacycliPyrethri	*Anacyclus Pyrethrum* (L.) DC.	1	0	Vitiligo	Asteraceae

Analysis of Uighur herb publications

The ten frequently used Uighur herbs have 455 academic publications totally. Among these publications, only 50% are directly related to medicine research. These literatures mostly concentrate on the extraction of the chemical composition and pharmacological activity analysis, accounting about 26.4% of the total publications, followed by clinical effect researches (as shown in Table 5). Meanwhile, the topic concentrations of research literatures are consistent with the patent applications of the Uighur herbs.

HerbaDracocephali has the largest amount of research publications, about 139. These researches mainly concentrate on the study of chemical component, including methods of flavonoids determination, HPLC fingerprint and pharmacologic actions of asthmatic rats. In the aspects of clinical effects, studies mainly focus on the influence of coronary heart disease and patients' curative effect observation (Gu et al., 2004; Ren et al., 2011; Song et al., 2010; Tian et al., 2012).

The number of research articles for *HerbaChamomillae* is about 138, most of which are reports about some cosmetics products. *FructusVernoniae* has 106 research publications, most of which are medical related, including about 43 chemical component studies and 44 clinical researches.

Especially, clinical effects researches concentrate on the clinical curative effect observation of *Vernoniaanthelmintica* Injection. Academic publications of *Folium FumicisDentati*are are mainly about cultivation, planting and medicinal clinical effects researches. Comparatively, the publications of *ResinaScammoniae* are less, which are mostly related to TUM preparations, including the quality standard of *BaixuanXiatare* Tablets and *Kukeya* Tablets, and the clinical effects of *Tongzhisurunjiang* Capsules and *BaixuanXiatare* Tablets. Meanwhile, researches about *Semen AmygdaliDulcis* are also found to be few: for preparations, there are two research articles including *Tongzhisurunjiang* Tablets and *Tongzhisurunjiang* Capsules (Yao, 2012); there are 8 articles about chemical component analysis; and 4 papers about cultivation and planting. Among the 12 research articles of *FructusApii*, two are involved with the preparations of *HanchuanZupa* Granules and *Ganbaokang* Granules.

Radix AnacycliPyrethri has only one research article as well as *Cortex Foeniculi*, titled as "The quality standard research of TUM preparation *Gujingmaisiha* Tablets" and "The study of chemical component of *Cortex Foeniculi" respectively*. In addition, *FructusPimpinellaeanisi* has no academic publication.

Table 5: Publication analysis of main Uighur herbs

Herb	Literature quantity	Literature content				
		Preparations	Clinical effects	Component and activity	Cultivation and planting	Others
Resina Scammoniae	5	4	1	0	0	0
Folium Fumicis Dentati	33	0	3	1	3	26
HerbaDracocephali	139	10	21	65	10	33
Semen AmygdaliDulcis.	8	2	1	1	0	4
HerbaChamomillae	138	1	1	8	4	124
FructusApii	12	2	0	1	0	9
Radix AnacycliPyrethri	1	1	0	0	0	0
FructusVernoniae	106	7	44	43	1	11
FructusPimpinellaeanisi	0	0	0	0	0	0
Cortex Foeniculi	1	0	0	1	0	0

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Table 6: Contents of publications

Herb	Component and activity literature quantity	Phytochemical constituents	Published pharmacological activity reports
Resina Scammoniae	0	Scammoniae resina	No
Folium Fumicis Dentati	1	Chrysophanol, Emodin, Aloe-emodin, Physcion, Phytosterol, Phytosterol ester, Free Fatty Acid	Research on the active ingredients of hemostasis (Xu, 1981)
Herba Dracocephali	65	Sorbarin, Scutellarein Rhamnoside, Linarin	Review research of chemical component and pharmacological activity (Song et al., 2010); research on the chemical component of Herba Dracocephali (Gu et al., 2004); chemical constituents and their pharmacological activities research (Yang et al., 2013), etc.
Semen Amygdali Dulcis.	1	Vegetable oil, Protei, Starch、Vitamin A、B1、B2,Digestive Enzyme	No
HerbaChamomillae	8	ChaPaxulene, Proazulere, Farnesene, Bisabolol, A-bisabolol Oxide-A, Suaianolide, Matrioin, Matricarin	Radiation treatment of herb tea for the reduction of microbial contamination (Flores chamomillae) (Katušin-Ražem et al.,1983), etc. Thin layer chromatography for characterization of pharmacopeia drugs (Stahl,1969), etc.
Fructus Apii	1	Eucalyptol, Umbrella Lactone, Celery Element, Linolenic Acid, Volatile Oil, Flavonoids, Boron, Minerals	No
Radix Anacycli Pyrethri	0	Volatile Oil: Caryophyllene, β-pinene, Ethybutylether	No
Fructus Vernoniae	43	Volatile Oil	Explore the effect of the Vernoniaanthelmintica wild Injection on the lymphocyte subclass of mice (Deng et al., 2002). The content of flavonoids in the fruit and various medical forms of fructus vernonia is tested by spectrophotometry (Zhou et al., 2000), etc.
Fructus Pimpinell aeanisi	0	Anisole	No
Cortex Foeniculi	1	Fennel essential oil, Polysaccharide, Anethole	Investigate the in vitro anti-candidal activity of the essential oil of Illicium verum (EOIV) alone and in combination with fluconazole. (Zhao et al., 2004), etc.

Discussion

Through the analysis of TUM registry, patent and academic publications, this study found that that most of research and development of TUM focus on the therapeutic areas of skin disease, urogenital disease, rheumatism and digestive system disease, implying the medical advantages of TUM in these therapeutic areas.

Publications about the popular Uighur herbs can also validate the effectiveness of those plant species used in the above main therapeutic areas. It is worth noting that researches about the active ingredients of Uighur herbs have been either old or rare (Xu, 1981; Katušin-Ražem et al., 1983; Stahl,1969). And the researches in recent years focus on the pharmacological activities and the actual clinical application test. Some of plant species are highly considered, such as Herba Dracocephali (Song et al., 2010; Gu et al., 2004; Yang et al., 2013), Fructus Vernoniae (Deng et al., 2002). Those plants have been used for a very long term and still can be used in today with scientific method validated.

Among all the research work about TUM, researches about skin disease account for the largest part, mainly focusing on the treatment of vitiligo and psoriasis. It may have a high relevance to the high morbidity of these two skin diseases in Xinjiang (Wen et al., 2013). Because these skin diseases are significantly influenced by climate, Xinjiang with intense sunlight and arid climate has higher skin disease morbidity (Tang et al., 1998). *BaixuanXiatare* Tablets, *Kaliziran Tincture* and *Vernoniaanthelmintica* Injection are famous medicines used for skin diseases such asvitiligo and psoriasis in Xinjiang, and these medicines are also widely used in Uighur hospitals (Liang, 2011; Liu and Liang, 2012; Wang, 2012;Wei et al., 2009). At present, more attentions are paid on the researches of *Kaliziran Tincture* and *Vernoniaanthelmintica* Injection, whose major components are from Uighur herb of*VernoniaAnthelmintica L.Vernoniaanthelmintica* Injection is a single-formula preparation, also the only injection of TUPM. In particular, some pharmacological researches proved the treatment mechanism of *VernoniaAnthelmintica L*, showing that *VernoniaAnthelmintica L* could enhance the activity of tyrosinse and melanin synthesis in A375 cells and increase the tyrosinase mRNA expression, increase melanin synthesis from gene level (Deng et al., 2004; Hui et al., 2010; Ma et al., 2008).

Although there are quite a few species of TUM related to urogenital disease, few researches and patent authorizations are carried out until now. The main Uighur patent medicines related to urogenital disease are *Xi-payimazibizi* Liquid treating prostatitis and *KursiKaknaq*used for urinary tract infection. They also have significant component differentia. For the reason of less research articles about the two TPUM, except for a few clinical observation researches, the knowledge about their function mechanism and the effective chemical composition is rare.

Rheumatism belongs to musculoskeletal disease in the ATC classification system. *Tongzhisurunjiang* Capsules is the most famous anti-rheumatism medicine in Xinjiang. Evidences form pharmacological and clinical study show that *Tongzhisurunjiang* Capsules can relieve the

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symptom of acute gouty arthritis patients effectively and promptly (Fan et al., 2009; Zhu et al., 2013), reduce the ESR and c-reactive protein, and also suppress expression of IL-1β, TNF-α in serum. It's proved to be an effective way to treat the acute gouty arthritis (Yao, 2012).

At last, this study showed there are several TUPMs for treating digestive system disease. However, only *HuganBuzure* Granules got patent authorization. This medicine is aiming at the treatment of stomachache, cirrhosis, hepatitis and other diseases, with few research articles and clinical efficacy evidence. Additionally, extractions of *HuganBuzure* Granules have protective effect on liver injury in mice (Wu et al., 2011).

HerbaDracocephali, *FructusVernoniae*, *HerbaChamomillae*and *FoliumFumicisDentati* have been mostly studied Uighur herbs. Most of literatures on *HerbaDracocephali* focus on the content of flavonoids compounds and pharmacological activity (Yan et al., 2003). The studies show that the flavones of *HerbaDracocephali* could inhibit the proliferation of VSMC induced by TNF-α, which might be one of the pharmacological mechanisms of *HerbaDracocephali* total flavoes in treatment for atherosclerosis (Cao et al., 2011; Song et al., 2010). In clinical curative effect, there is less study on *HerbaDracocephali*. *FructusVernoniae* is the major components of pharmaceutical preparation in treating psoriasis and vitiligo, and major research is conducted on chemical composition and extraction technology (Yao, 2007; Yu et al., 2007). *HerbaChamomillae*has protective effect to skin and it is widely used in cosmetics for research has shown the anti-inflammatory effect of volatile oil from it (Yuan et al., 2011). The study of *Folium FumicisDentati* is mainly on the extraction process of flavonoids. However there is no research on pharmacological action and clinical effect (Nurma-mmat*et* et al., 2008; Palida et al., 2013).

In general, while the curative effect of TUM has been proved to some degree, lacks of using modern technologies may cause uncertain effect, which has affected the standardization of TUM. The shortage of applying modern technologies has limited TUM in drug-approval and medical application.

Conclusion

As a part of China and Central Asia's traditional medicine, TUM in Xinjiang play an important role in the local care system, at the same time, it promotes the cross-regional communication and development of health. This study finds that the TUM in Xinjiang has a vital value and abundant experience in treatment of skin disease, urogenital system disease, rheumatism and respiratory system disease. On the one hand, this study can provide some new ideas and methods for these diseases' treatment, especially for patients with some intractable diseases such as psoriasis and vitiligo. On the other hand, traditional Uighur herbs can be a reservoir of traditional medicinal plants with potential for the development of some diseases' modern therapeutics. These traditional Uighur herbs with excellent curative effect should be screened in detail for their phytochemical properties and pharmacological activity to discover new bioactive constituents, then provide knowledge base for new drug's R&D. Further, more studies for TUM should be carried out, and the efficacy and safety of TUM should be evaluated for pharmacological studies especially the species with high value.

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